In the Claims

What is Claimed is:

1. A call processing system, comprising:

a switch;

a network control processor comprising

a first gateway coupled to said switch,

a central message processor coupled to said first gateway,

a database server and associated database coupled to said central message processor,

a billing server coupled to said central message processor, and

a call route distributor, coupled to said central message processor;

an operator console, coupled to said network control processor;

a validation system, coupled to said network control processor;

a billing system, coupled to said network control processor; and

a fraud system, coupled to said network control processor.

2. The call processing system of claim 1, further comprising:

an error box, coupled to said network control processor; and

a log box, coupled to said network control processor.

3. A computer-based system for processing telephone calls comprising:

a switch configured to accept call audio for the call and to route said call audio to a destination to complete a call;

a network control processor, coupled to said switch, configured to accept call data for the call, to use said call data to determine how the call is to be processed, and to configure said switch to route the call to said destination.

4. The computer-based system of claim 3, further comprising at least one operator console, coupled to said switch and to said network control processor, configured to provide operator services to the call.

5. The computer-based system of claim 4, wherein said at least one operator console is an automated operator console.

6. The computer-based system of claim 3, wherein said network control processor comprises a central message processor, configured to receive call data from a subscriber, to determine call parameters for the call based on said call data, wherein said call parameters are used to determine how the call is to be processed.

7. The computer-based system of claim 4, wherein said network control processor comprises a central message processor, configured to receive call data from a subscriber, to determine call parameters for the call based on said call data, wherein said call parameters are used to determine whether operator assistance is required and how the call is to be processed.

8. The computer-based system of claim 7, further comprising a call route distributor, coupled to said central message processor for allocating an operator console to provide operator assistance to a call.

9. The computer-based system of claim 7, further comprising a database server coupled to said central message processor and configured to store said call parameters in at least one database.

10. The computer-based system of claim 3, further comprising a gateway coupled to said network control processor and configured to perform communications protocol conversions necessary for communications between said network control processor and said switch.

11. The computer-based system of claim 3, further comprising a billing system, coupled to said network control processor and configured to determine a rate for a call and to determine a cost of a call based on said rate.

12. The computer-based system of claim 4, further comprising a validation system, coupled to said network control processor and configured validate call information received from said operator console.

13. The computer-based system of claim 12, wherein said validation system comprises:

a p-code database, configured to store at least one validation instruction indicating a method for performing a particular validation, wherein said method can be uniquely defined for each customer and each originating user; and

a validator configured to receive the call information to be validated from an operator console, to retrieve said at least one validation instruction from said p-code database, and to validate the call information using said method indicated by said validation instruction.

14. The computer-based system of claim 3, further comprising a fraud system for detecting possible occurrences of fraudulent use of a calling network, coupled to said network control processor and configured to monitor calls, store data concerning said calls, compare said stored data to preset bounds, and trigger an alarm if said stored data is outside of said preset bounds.

15. A call processing system for processing and routing a telephone call, comprising:

a network control processor configured to accept call data for the call, to use said call data to determine how the call is to be processed, and to generate instructions regarding routing of the call; and

a switch, coupled to said network control processor, configured to accept call audio and to route said call audio to a destination to complete the call based on said instructions.

16. The call processing system of claim 15, wherein said network control processor further comprises:

first means for receiving call data from a subscriber;

second means, coupled to said first means, for determining a call type for the call and further determining whether the call requires operator assistance based on said call data; and

third means, coupled to said second means, for allocating an operator console to handle the call where operator assistance is required as determined by said second means.

17. The call processing system of claim 16, wherein said network control processor further comprises fourth means, coupled to said second means, for determining a type of operator assistance required where the call requires operator assistance, wherein said fourth means makes said determination based on said call data.

18. The call processing system of claim 16, wherein said network control processor further comprises fourth means, coupled to said second means, for assigning an identifier to the call used to identify the call within the call processing system

19. The call processing system of claim 16, wherein said second means comprises means for determining call parameters based on said call data, wherein said call parameters indicate the type of processing required for the call and whether and what type of operator assistance is required.

20. A method of routing telephone calls received from a subscriber, the calls having call data and call audio associated therewith, comprising the steps of:

(a) receiving the call data at a network control processor;

(b) receiving the call audio at a matrix switch;

(c) determining call parameters based on the call data, wherein said call parameters uniquely define the type of processing required for each received call;

(d) determining routing required to route the call audio to a desired destination, said routing determination based on the call data; and

(e) configuring said matrix switch to route the call audio to said desired destination determined in said step (d).

21. The method of claim 20, further comprising the steps of:

(f) determining whether operator assistance is required to process the call, said determination based on the call data;

(g) allocating an operator console to handle the call if operator assistance is required;

(h) configuring said matrix switch to route the call audio to said allocated operator console so that said operator assistance can be provided.

22. The method of claim 20, wherein said step (e) comprises the steps of:

(f) generating a switch command message in said network control processor, said switch command message based on said routing determined in said step (d);

(g) sending said switch command message to said matrix switch, wherein said switch command message configures said matrix switch to route the call audio to said desired destination.

23. The method of claim 21, wherein said step (h) comprises the steps of:

i. generating a switch command message based on said routing determined in said step (d);

ii. sending said switch command message to said matrix switch to configure said matrix switch to route the call audio to said allocated operator console.

24. The method of claim 21, further comprising the steps of:

(i) requesting information required to complete the call from the subscriber;

(j) receiving said required information at said allocated operator console and determining whether the call can be completed; and

(k) informing said network control processor whether the call can be completed.

25. The method of claim 24, wherein said step (j) for determining whether the call can be completed comprises the step of validating said received information to determine whether said received information is valid.

26. The method of claim 25, wherein said step of validating said information comprises the steps of:

(a) sending a validation request to a validation system, wherein said validation request includes information to be validated;

(b) retrieving validation instructions from a database, wherein said validation instructions provide instructions as to how the validation is performed;

(c) executing said validation instructions to validate said information to be validated; and

(d) sending a validation response to said operator console indicated whether said information is validated.

27. A method of providing operator assistance to a subscriber placing a telephone call, comprising the steps of:

(a) receiving a call from the subscriber, wherein call data for the call is routed to a network control processor and call audio for the call is routed to a matrix switch;

(b) using said call data to determine the type of call placed and to determine whether and what type of operator assistance is required;

(c) routing said call audio to an operator console allocated to provide operator assistance to the subscriber;

(c) requesting and receiving information from said subscriber where required to complete the call;

(d) determining whether the call can be completed based on said call data and on said information;

(e) routing said call audio to a terminating number.

28. A method for providing enhanced call-processing features to a telephone subscriber, whereby the features can be accessed using an enhanced services card, comprising the steps of:

(a) receiving an enhanced services card call from the subscriber, wherein call data for the call is routed to a network control processor and call audio for the call is routed to a matrix switch;

(b) using said call data to determine that the call placed is an enhanced services card call, and to allocate an operator console to handle said enhanced services card call

(c) routing said call audio to said allocated operator console;

(d) requesting and receiving information from said subscriber regarding the feature said subscriber wishes to access;

(e) routing said call audio to an appropriate destination based on the feature accessed.

29. The method of claim 28, wherein said step (d) comprises the steps of:

i. receiving an enhanced services card number;
ii. receiving a feature access number; and
iii. receiving a terminating number where required; and

claim 1 further comprises the step of validating said received information and terminating the call if said received information fails a set number of validation attempts.

30. The method of claim 29, further comprising the step of allowing the subscriber to re-enter said received information that failed a validation.

31. A method for processing telephone calls, comprising the steps of:

(a) receiving a call from a subscriber having call data and call audio;

(b) using said call data to determine a process and a DEF record to be used in processing the call, wherein said process is defined by a process identifier and said DEF record is defined by a DEF record identifier;

(c) sending said process identifier and said DEF record identifier to an operator console allocated to handle said call;

(d) starting said process identified by said process identifier;

(e) retrieving data from said DEF record based on tag information contained in said process, wherein said retrieved data contains information pertaining to actions to be followed in handling the call; and

(f) performing actions indicated by said retrieved data.

32. A computer-based system for validating call information from an operator console, comprising:

a p-code database, configured to store at least one validation instruction indicating a method for performing a particular validation, wherein said method can be uniquely defined for each customer and each originating user; and

a validator configured to receive the call information to be validated from an operator console, to retrieve said at least one validation instruction from said p-code database, and to validate the call information using said method indicated by said validation instruction.

33. A computer-based system for updating a first set of at least one database to reflect changes made to a second set of at least one database, comprising:

a delta table, for storing changes made to said second set of at least one database;

at least one trigger, configured to capture said changes made to said second database and to store said changes in said delta table; and

a distributor, configured to update appropriate ones of said first set of at least one database using said changes in said delta table whereby said first set of at least one database reflects changes made to said second set of at least one database.

34. A system for providing a calling party with a rate quote for a telephone call, comprising:

a rate file, configured to store billing rates for telephone calls, wherein said rates are stored based on call attributes such as time of day, jurisdiction of call, identification of customer, and type of call; and

an operator console, configured to communicate with the calling party, to retrieve a billing rate for a telephone call from said rate file, and to provide a rate quote to the calling party for the telephone call.

35. A client/server interface system comprising:

a client interface;
a configuration file coupled to said client interface;
a timer coupled to said client interface;
an outstanding request list coupled to said client interface; and
an incoming packet list coupled to said client interface.

36. A system for detecting fraudulent use of a telephone network, comprising:

a billed number usage module configured to receive call information pertaining to toll calls placed over the network, to store said received call information, to compare said received call information with an established data boundary, and to generate an alarm signal when said data is outside said established boundary;

a failed number usage module, configured to receive failed call attempt information, to analyze said received failed call attempt information, and to maintain a historical record of failed call attempts; and

a fraud console, coupled to said billed number usage module and to said failed number usage module, configured to receive said alarm signal, to alert a system operator of the occurrence of an alarm signal, and to display received, stored, and alarm information.